AMENDMENTS IN THE CLAIMS:

1-40. *(canceled)*

41. (amended) A method for making a long superconductor, e.g. a tape or wire, by depositing at least one polycrystalline superconducting compound onto a metallic substrate or onto a buffer layer system ~~of~~ on said substrate, characterized by the following steps

- fabricating said metallic substrate or said buffer layer system to consist of or to contain on or close to its surface a microstructure of longitudinally oriented, long grains with a high aspect ratio, $a = L_{par}/L_{per}$ exceeding 1.5, and

- ~~producing at least one percolation path along the length of said superconductor, each said path consisting of superconducting grains of said superconducting compound by~~ epitaxially growing said superconducting compound ~~grains on a preselected microstructure of~~ on said substrate or on a top layer of said buffer layer system ~~such that~~ to produce a ~~majority~~ percolation path of ~~the~~ long superconducting grains ~~is~~ being aligned ~~along the~~ longitudinally ~~extension of said superconductor, the majority of said superconducting grains in said path have~~ and exhibiting a ~~shape~~ high aspect ratio such that their projection, being characterized by a length L_{par} parallel to the longitudinal extension of said superconductor and a length L_{per} perpendicular thereto, has an aspect ratio

$a = L_{par}/L_{per}$ exceeding 1.5, ~~and~~ the total volume V of said long superconducting grains ~~being members of such one or more percolation paths exceeds~~ exceeding 10% of the volume of said superconducting compound ~~on said superconductor~~.

42. (amended) The method according to claim 41, wherein the buffer layer system is provided on ~~the~~ a substrate~~, the latter being~~ of arbitrary structure, the top layer of said buffer layer system containing or consisting of a microstructure of longitudinally aligned grains with the high aspect ratio, $a = L_{par}/L_{per}$ exceeding 1.5, and wherein the superconducting ~~grains are~~ compound is grown on ~~a preselected microstructure of the~~ said top layer of said buffer layer system.

43. (canceled)

44. (amended) The method according to claim 41, wherein the microstructure of a surface of the substrate or of the top buffer layer is controlled by mechanical, atom-beam, or ion-beam treatment to produce the longitudinally oriented, long grains with the high aspect ratio.

45. (amended) The method according to claim ~~41~~ 44, wherein the microstructure of the surface of the substrate or of the top buffer layer is ~~controlled by polishing~~ treated to produce grooves in ~~the~~ said surface, said grooves having a depth of about 100nm, a length of about 100µm and a density of about 1/µm.

46. (amended) The method according to ~~any of the~~ claim ~~41~~ 44, wherein the microstructure control steps are executed and/or repeated until an average angular misorientation of the produced long grains of the superconducting compound of less than 15° is achieved.

47. (amended) The method according to ~~any of the~~ claim 41, wherein the superconducting compound is deposited from the vapor phase.

48. (amended) The method according to ~~any of the~~ claim 41, wherein the deposition of the superconducting compound or is performed from a solution.

49. (canceled)

50. (previously presented) An at least partly superconducting object, in particular a wire or cable, comprising a superconductor fabricated according to claim 41.

51. (new) The method according to claim 42, wherein the buffer layer system consists of a single layer only.

52. (new) The method according to claim 41, wherein the aspect ratio $a > 4$.

53. (new) The method according to claim 41, wherein the total volume $V > 25\%$.

54. (new) The method according to claim 41, wherein the superconducting compound is a polycrystalline multilayer arrangement whose layers have different compositions.

55. (new) The method according to claim 54, wherein at least one layer of the superconducting compound is or contains a cuprate.

56. (new) The method according to claim 54, wherein at least one superconducting compound of the layers belongs to the $ReBa_2Cu_3O_{7-\delta}$ family, Re being a rare earth including La or Y.

57. (new) The method according to claim 41, wherein the grains are aligned such that the average misorientation angle is below 20°.

58. (new) The method according to claim 41, wherein the substrate is a metallic tape such as steel or a Ni alloy with a thickness in the range of 20 to 100 μm, whose surface grains are appropriately aligned.

59. (new) The method according to claim 42, wherein the buffer layer system comprises a plurality of sublayers such as CeO_2/YsZ/CeO_2.